REMARKS

Responsive to the Office Action mailed September 5, 2007, Applicants amend claims 1, 3, 5, 7, 9, and 10 to recite the invention with greater clarity. New claims 11-18 are added to recite embodiments supported by original disclosure. Upon entry of this Amendment, claims 1-3 and 5-18 are pending and under consideration.

Claim 1 has been amended to recite a tunable filter adapted to sequentially shift pass band between two or more wavelengths multiple times as each particle passes through the illuminated predetermined volume. Support for the amendment can be found for example in the Specification at page 4, lines 22-29. Claims 5 and 7 have been similarly amended.

Claim 9 has been amended to recite repetitively detecting the emitted characteristic fluorescence of each of said particles multiple times during the transit of each of the particles through the illumination source. Support for the amendment can be found for example in the Specification from page 4, line 29 to page 5, line 2.

Claim 10 has been amended to recite detecting the characteristic fluorescence by repetitively passing the emitted light at each characteristic wavelengths through a tunable filter during the transit of each particle through the illumination source. Support for the amendment can be found in the Specification at page 4, lines 22-31.

Support for new claims 11-18 can be found for example in the Specification at page 5, lines 7-25.

No new matter has been introduced by the above amendments.

Applicants acknowledge with thanks the acceptance of drawings submitted August 8, 2007.

Claim Rejections under 35 U.S.C. § 102:

Claims 9-10 stand rejected under 35 U.S.C. § 102(e) as being allegedly anticipated by U.S. Patent Application Publication No. 2003/0017076 (Kochy *et al.*). Applicants traverse.

As an initial matter, Applicants note that Kochy *et al.* is cited under 35 U.S.C. 102(e). Under 35 U.S.C. 103(c), prior art under 35 U.S.C. 102(e) shall not preclude patentability if the subject matter of the prior art and the claimed invention were, at the time the invention was made, owned by the same person or subject to the obligation of assignment to the same person. Applicants submit that at the time the present invention was made, both Kochy *et al.* and the present invention were owned by the same person, Guava Technologies, Inc. Thus, if Kochy *et al.* is cited under 35 U.S.C. 102(e), it shall not be qualified as prior art in the rejections of the claims under 35 U.S.C. 103(a), below.

Applicants further note that Kochy *et al.* was published on January 23, 2003, which is prior to the filing date or priority date of the instant application. Thus the Examiner may consider whether Kochy *et al.* is qualified as prior art under 35 U.S.C. 102(a), and 103(a)/102(a). In order to expedite prosecution, Applicants comment Kochy *et al.* below. However, this should not be construed as an admission. Clarification from the Examiner is respectfully requested.

The instant invention provides a simple, relative inexpensive multicolor particle detection system and method which employs a capillary tube and a tunable filter. The capillary tube provides a detection volume through which particles to be analyzed pass. The particles naturally fluoresce or are tagged with molecules to fluoresce at distinct wavelengths when they are illuminated in the detection volume by a light beam. The tunable filter is adapted to sequentially shift pass band between two or more wavelengths two or more times, or multiple times during the transit of each particle through the detection volume. Because the tunable filter sequentially and repetitively

shifts pass band during the transit of each particle through the detection volume, particles that emit at two or more distinct wavelengths, i.e., in a multicolor system, can be detected, and each particle can be detected multiple times as it passes though the detection volume. A sampled output signal pulse is thus measured at each fluorescent wavelength as each particle passes the illumination source. As one of the advantages of the invention, only a single detector is required for a multicolor system detection as the tunable filter is adapted to sequentially shift pass band during detection. Further, the peak intensity and area of the output pulse for each particle can be determined from the signal pulse. This is in contrast to prior art systems which employ filters that are not tunable during detection but pass light at fixed wavelengths. These prior art systems all generate sampled output pulses using a multiplicity of detectors.

Claim 9, as amended, calls for repetitively detecting the emitted characteristic fluorescence of each of said particles multiple times during the transit of each of the particles through the illumination source. Kochy *et al.* do not teach or suggest repetitively detecting the fluorescence of each particle multiple times during the transit of each particle through the illumination source. In paragraph 0023 which is relied upon by the Examiner, Kochy *et al.* teach filters placed in front of detectors 23 and 24 to pass light at specific wavelengths. These filters are not tunable during detection but pass light at fixed wavelengths. Kochy *et al.* do not teach filters which are tunable and shift pass band multiple times during the transit of each particle through the illumination source, thus allowing repetitively detecting of the emitted fluorescence of each particle multiple times during the transit of each particle.

Therefore, reconsideration of the rejections of claim 9 and dependent claim 10 under 35 U.S.C. 102, is respectfully requested.

Claim Rejections under 35 U.S.C. § 103:

Claims 1 and 3 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Kochy *et al.* in view of Dovichi *et al.* According to the Examiner,

Kochy *et al.* teach all the limitations recited in claim 1 except for a tunable filter. However, the Examiner argues that Dovichi *et al.* teach a tunable filter. Therefore, the Examiner concludes that it would have been obvious for one of ordinary skill in the art to modify *Kochy et al.* in view of Dovichi *et al.* in order to pass selective light pulses corresponding to wavelengths of each particle resulting clear and precise detected images of the particles which are displayed on a monitor for further evaluation. Applicants respectfully disagree.

Claim 1 as amended, calls for a multicolor particle analyzer including a tunable filter adapted to sequentially shift pass band between two or more wavelengths multiple times as each particle passes through the illuminated predetermined volume. The "adapted to" clause states a limitation that is material to the patentability of the invention, *i.e.*, a tunable filter that sequentially shifts pass band between two or more wavelengths multiple times as each particle passes through the illuminated volume, and thus a multicolor particle analyzer. Pursuant to MPEP 2111.04, Applicants respectfully request the limitation recited by the "adapted to" clause be considered.

Dovichi *et al.* do not teach or suggest a tunable filter adapted to sequentially shift pass band between two or more wavelengths multiple times as each particle passes through the illuminated predetermined volume, as called for by instant Claim 1. In addition, Dovichi *et al.* do not teach measuring a sampled signal output at each fluorescent wavelength using one detector.

At Col. 5, lines 44-46 which is relied upon by the Examiner, Dovichi *et al.* teach that the filter may be a set of filters on a rotating wheel, or can be a grating or a prism. The filters on a rotating wheel or a grating or prism cannot shift pass band during detection, or as each particle passes through the illuminated predetermined volume. Although Dovichi *et al.* teach that their filter can be a tunable filter, the Dovichi *et al.*'s tunable filter do not sequentially shift pass band during detection, *i.e.,* when particles pass through the illuminated volume. The pass band of Dovichi *et al.*'s filter is fixed

during detection of the particles. Dovichi *et al.* teach an analyzer for a single color system. There is no teaching throughout Dovichi *et al.* on sequentially shifting pass band during detection of each particle. Nor is there any teaching in Dovichi *et al.* on pass band shifting multiple times from each wavelength during the transit of each particle passing through the illumination volume. It is respectfully submitted that neither Kochy *et al.* nor Dovichi *et al.* teach the concept of shifting pass band sequentially, and repetitively a number of times as each particle passing through an illumination volume.

Applicants submit that it would not have been obvious for one of ordinary skill to combine Dovichi *et al.* with Kochy *et al.* to arrive at the instant invention. As described in more detail in the instant Specification at page 5, lines 7-25, the thickness of illumination beam, the capillary dimensions, the velocity of the sample fluid, and pass band shifting speed of the tunable filter are selected that the fluorescent emission of particles in a multiple color system such as a four color system can be detected multiple times such as five times during the transit of each particle through the detection region. See also FIG. 7 of the instant application, which shows the shifting of pass bands between four different wavelengths multiple times. Because the pass band is sequentially shifted and the process repeated multiple times during the transit of each particle through the detection region, the detector provides output pulses corresponding to the intensity of emitted fluorescent light at the characteristic wavelength at the sampling interval. Neither Dovichi *et al.* nor Kochy *et al.* teach or suggest detecting a particle in a multi-color system multiple times at a time interval.

Based on the foregoing, Applicants respectfully request reconsideration of the rejections of claim 1, and dependent claims 2-3 under 35 U.S.C. 103(a) over Kochy *et al.* in view of Dovichi *et al.*

Claims 5-8 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Kochy *et al.* in view of Pettit. According to the Examiner, Pettit teaches an acousto-optic tunable filter, relying on Col. 8, lines 13-18. Therefore, the

Examiner concludes that it would have been obvious for one of ordinary skill in the art to modify *Kochy et al.* in view of Pettit in order to allow the passing of desired pulses of fluorescence wavelength which are detected and converted into electrical signals wherein pulse output result in clear and precise images displayed on a monitor for further analysis. Applicants respectfully disagree.

Claim 5, as amended, calls for a method of analyzing particles which comprises receiving emitted light with a tunable optical filter that is adapted to sequentially shift pass band between two or more wavelengths multiple times as each particle passes through the analyzing region.

Claim 7, as amended, calls for a particle analyzer including a tunable optical filter adapted to sequentially shift pass band between two or more wavelengths multiple times as each particle passes through the illuminated analyzing volume.

Pettit teaches an apparatus for sequencing DNA in which a laser beam is focused on DNA fragments as they migrate along a plurality of lanes through a stationary gel under the influence of an applied electrical field. Pettit employs an electrically tunable optical filter which passes a desirable wavelength of light and blocks all other wavelength of light. Like Dovichi *et al.,* Pettit does not teach or suggest a tunable optical filter adapted to sequentially shift pass band between two or more wavelengths multiple times as each particle passes through the illuminated volume.

Furthermore, Pettit teaches pause or delay between data records are inputted. See Col. 14, lines 37-50. According to Pettit, a delay is needed because the migration of the DNA fragments in the stationary gel is much slower than the optical techniques used in Pettit. Therefore, a delay of about 0.01 to approximately 3 seconds will be necessary between taking data records in order to not generate an amount of data that cannot be handled or that is redundant. It is not possible with the teaching of Pettit to sequentially shift pass band between two or more wavelengths multiple times during the

transit time of each particle through a detection volume in a capillary, as called for by instant claim 5.

Based on the foregoing reasons, Applicants respectfully request reconsideration of the rejections of claims 5 and 7, and dependent claims 6 and 8 under 35 U.S.C. 103(a) over Dovichi *et al.* in view of Pettit.

Applicants respectfully submit that the instant application is in condition for allowance. An early indication of the same is therefore respectfully requested. If any matters can be resolved by telephone, the Examiner is invited to call the undersigned attorney at the telephone number listed below.

No fees beyond those being submitted concurrently herewith are believed due. The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check or credit card payment form being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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By _____

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